Claims:

1.   A method for evaluating quality of a processed image, comprising the steps of:

generating at least one artifact measure; and

generating a no-reference quality measure from said at least one artifact measure, where said no-reference quality measure represents a quality measure of the processed image.

2.   The method of claim 1, wherein said no-reference quality measure is generated directly from said processed image.

3.   The method of claim 1, where said at least one artifact measure comprises a ringing artifact measure.

4.   The method of claim 3, wherein said generating at least one ringing artifact measure comprises:

segmenting the processed image into at least one uniform region;

identifying at least one edge within the processed image; and

defining at least one region adjacent to said at least one edge.

5.   The method of claim 4, wherein said at least one ringing artifact measure is generated in accordance with:

$$R_{i,j} = \begin{cases} \dfrac{\text{var}(E_{i,j})}{\text{var}(U_i)}, & \exists\, i,j \ni x \in E_{i,j} \wedge |E_{i,j}| > M \\ 0, & \text{otherwise} \end{cases}$$

where $R_{i,j}$ denotes said ringing artifact measure, $\text{var}(E_{i,j})$ denotes variance of $E_{i,j}$, $\text{var}(U_i)$ denotes variance of a uniform region U_i, $E_{i,j}$ denotes an jth connected component of the intersection of a region adjacent to said at least one edge E and U_i, and M is a threshold.

6.   The method of claim 4, wherein said at least one region adjacent to said at least one edge is defined in accordance with a coding block size.

7.   The method of claim 1, where said at least one artifact measure comprises a quantization artifact measure.

8.   The method of claim 7, wherein said generating at least one quantization artifact measure comprises:

computing at least one horizontal contrast at each pixel location;

computing at least one vertical contrast at each pixel location;

filtering at least one of said horizontal contrast and vertical contrast; and

summing said filtered horizontal contrast and vertical contrast over a sliding window.

9.   The method of claim 8, wherein said at least one quantization artifact measure is generated in accordance with:

$$V_{i,j} = \max(\left|S_{i,j}^h + S_{i,j}^v\right|, \left|S_{i,j}^h - S_{i-7,j}^v\right|, \left|S_{i,j-7}^h - S_{i,j}^v\right|, \left|S_{i,j-7}^h + S_{i-7,j}^v\right|)$$

where $V_{i,j}$ denotes a quantization artifact measure, $S_{i,j}^h$ denotes a sum of horizontal contrasts over a window and $S_{i,j}^v$ denotes a sum of vertical contrasts over a window.

10.   The method of claim 1, where said at least one artifact measure comprises a resolution artifact measure.

11.   The method of claim 10, wherein said generating at least one resolution artifact measure comprises:

applying a fast fourier transform to the processed image; and

computing an average of amplitudes of all directions at a frequency.

12.   The method of claim 1, where said at least one artifact measure comprises a sharpness artifact measure.

13.   The method of claim 12, wherein said generating at least one sharpness artifact measure comprises:

detecting at least one edge in the processed image; and

computing an edge strength for each of said detected edge.

14.   The method of claim, further comprising:

obtaining at least one coding parameter from the compressed image sequence, wherein said no-reference quality measure is generated from said at least one artifact measure and said at least one coding parameter.

15.   The method of claim 14, wherein said at least one coding parameter comprises a target bit rate, a quantization factor, or a quantization table.

16.   The method of claim 1, further comprising:

generating a map of said processed image in accordance with said at least one artifact measure.

17.   The method of claim 1, wherein said at least one artifact measure is generated in accordance with spatio-temporal regions with different properties.

18.   The method of claim 1, further comprising:

generating a virtual reference image directly from said processed image.

19.   An apparatus for evaluating quality of a processed image, comprising the steps of:

means for generating at least one artifact measure; and

means for generating a no-reference quality measure from said at least one artifact measure, where said no-reference quality measure represents a quality measure of the processed image.

20.   A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps comprising of:

generating at least one artifact measure; and

generating a no-reference quality measure from said at least one artifact measure, where said no-reference quality measure represents a quality measure of the processed image.